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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/736,896

12/17/2003

Boris A. Maslov

42691-2018-CIP3.US

4040

26633

7590

05/22/2006

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EXAMINER

COLON SANTANA, EDUARDO

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 05/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/736,896

Applicant(s)

MASLOV ET AL.

Examiner

Eduardo Colon Santana

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> .      |

**DETAILED ACTION**

1. Applicant's amendments filed on 3/21/2006 have been received and entered in the case.
2. Applicant's amendments/remarks with respect to the claims have been considered but are still not persuasive.

***Drawings***

3. The replacement sheets of drawing figures 6 and 10 were received on 3/21/2006. These sheets of drawings are acceptable.

***Information Disclosure Statement***

4. The information disclosure statement (IDS) submitted on 12/17/2003; 8/25/2004, 3/23/2005 and 3/21/2006 (copy of previously submitted) are in compliance with the provisions of 37 CFR 1.97. However, the information disclosure statements are being considered in part by the examiner, because they fail to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The non-patent literature cited on pages 3 and 4 from the IDS submitted on 12/17/2003 and 3/21/2006 (copy) and page 1 from IDS submitted on 8/25/2004 were not found or identified in the parent case (U.S. Application No. 10/359,305). Please resubmit legible copies of each cited non-patent literature publication for them to be considered.

***Specification***

5. The substitute specification filed 3/21/2006 has been entered because it conform to 37 CFR 1.125(b) and (c).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 2-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2-5 attempts to define the subject matter in terms of a result to be achieved, which merely amounts to a statement reciting a motor having a torque density of at least 20 Nm/kg, without providing the technical features necessary for achieving this result.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li U.S. Patent No. 6,278,216 and Mongeau U.S. Patent No. 5,917,295, and further in view of UQM Technologies.

Referring to claims 1-5, Li discloses a vehicle motor for a motor bicycle having two wheels and one in-wheel electric motor, (see all figures and respective portions of the specifications). Li further discloses that the electric motor includes a stator (4) and rotor (3), wherein the stator comprises a plurality of stator core elements (42B) being arranged in groups, being associated with a corresponding one of the phases of the electric motor. Additionally, Li clearly depicts from figure 8 and 10, that each of the groups being structurally

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separated and magnetically isolated and separated from other groups. However, even though Li discloses a controller (see figure 12), he does not explicitly describe the controller controlling the electrical flow on each group being independently controllable of each other phase. On the other hand, Mongeau disclose an improved motor drive system having a plurality of series connected H-bridges (see figures 1, 7 and respective portions of the specification), wherein each phase of the motor is controlled independently of each other.

Since Li et al. and Mongeau are in the same field of endeavor, the purpose disclosed by Mongeau would have been recognized in the pertinent art of Li.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have each phase controlled independently of each others phase by a controller as taught by Mongeau within the teaching of Li for the purpose of reducing switching losses and to reconfigure each motor phase winding at various operating modes, optimizing the speed of the motor at different loads (dynamic selection) to increase efficiency.

On the other hand, even though Li and Mongeau are silent on the torque-to-weight ratio (20 Nm/kg), this design parameters is an obvious implementation in the structure of the motors being used. UQM Technologies shows a variety of motors being used on vehicle propulsion systems in which the torque-to-weight ratio differ from one motor to another in accordance with the speed, voltage and/or other variables require to operate at desire efficiency.

It would have been an obvious matter of design choice to one having ordinary skill in the art at the time the invention was made to claim a specific torque-to-weight ratio, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Referring to claim 6, Li addresses the similar limitation of claim 1 above regarding an in wheel motor with each of its electromagnetic circuit (42B) being sufficiently isolated (see figures 8 and 10).

Referring to claim 7, Li discloses an in-wheel motor that moves a vehicle as shown in figure 3 and described in claim 1 above. Additionally Li mentions the use of a motor control system (figure 12) having a processor (MPU), which obviously would be dynamically adapted to any user inputs (i.e. speed, brake); any operating conditions (i.e. temperature) and any operating parameter (i.e. torque, current, voltage).

#### ***Response to Arguments***

7. Applicant's arguments filed 3/21/2006 have been fully considered but they are not persuasive.

It is believed that the prior art used reads on the claims as they have been amended.

The 112<sup>th</sup> 2<sup>nd</sup> rejection to claims 1-5 for unduly multiplicity has been withdrawn. However, the different breadth of each independent claim does not justify the unduly repetition of each independent

claims. In the present application, it appears appropriate to include a single independent apparatus claim.

In regards to the response that there is no reason why one skill in the art would be guided by UQM technologies to "optimize" the torque-to-weight is not persuasive. As describe above in the rejection, the torque-to-weight parameter is a design parameter and an obvious implementation in the structure of the motor being use. One ordinary skill in the art would be motivated to adapt a particular torque-to-weight parameter departing from the design in which it is used (car, bus, bike, golf car, etc.).

As to claim 6 and 7, Li clearly depicts in figure 8, having its electromagnetic circuits being sufficiently isolated. And in figure 12, a processor (MPU), which obviously would be dynamically adapted to any user inputs (i.e. speed, brake); any operating conditions (i.e. temperature) and any operating parameter (i.e. torque, current, voltage).

#### **Conclusion**

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action



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is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Colon Santana whose telephone number is (571) 272-2060. The examiner can normally be reached on Monday thru Thursday 6:30am - 5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on (571) 272-2800 X.33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eduardo Colon Santana  
Examiner  
Art Unit 2837

ECS  
May 3, 2006



MARLONT FLETCHER  
PRIMARY EXAMINER

**IN THE DRAWINGS**

Please replace drawings sheets 6/11 (Figure 6) and 10/11 (Figure 10), as filed 25 August 2004, with the enclosed replacement drawing sheets.

The replacement drawing sheets remove extraneous reference numbers in accordance with the Examiner's helpful suggestions.

The replacement drawings include no new matter.